FABTEK®

TOKI

OWNERS MANUAL — TOKI®

VIDEO GAME OPERATOR:

Don't Get Involved In A Federal Crime. Don't Buy Or Operate Copy Or Unauthorized Boards In Your Games.

Warning



Every operator who buys or operates a counterfeit or unauthorized board (imported or domestic) is contributing to the end of our industry and committing a FEDERAL CRIME.

New criminal laws have recently been enacted that provide for maximum penalties of $250,000 or five years in prison or both, per offense. EACH GAME IS A SEPARATE OFFENSE.

DON'T GET INVOLVED IN THIS CRIMINAL ACT.

FBI

WARNING

If you have any information about any unauthorized games in the United States, contact your local FBI or,

American Amusement Machine Association

205 The Strand
Suite 3
Alexandria, Virginia 22314
(703) 548-8044

All information will be treated in confidence.

SAFETY

The following topics should be carefully studied to insure maximum reliability and safety for both serviceman and customer. Shock Hazard: The high voltage present on the monitor may be very dangerous. Extreme caution must be used when working with or around the monitors. Be certain that the grounding strap is attached to the monitor frame. The picture tube in the monitor is also a hazard and should be handled with care. Do not strike, scratch, or subject the tube to more than moderate pressure as it may implode causing serious injury from flying glass. Be certain that the control panel, power supply monitor, and coin door are all properly grounded to the ground wire inside the line cord. Do not remove ground prong off plug end.

PARTS LIST

1 - Plex Marquee
1 - Control Panel Overlay
1 - FCC Cage
1 - Graphic Sheet
2 - Side Graphics
1 - Manual
6 - Buttons
1 - JAMMA Cable
1 - Marquee Art
1 - Toki PCB
1 - 8 Way Joystick & Hardware

FABTEK®
8333 154th Avenue NE
Redmond, WA 98052
(206) 882-1093
(until 12-1-89)

FOR SERVICE CONTACT:

Your authorized Fabtek® Distributor
or
SUMMIT SERVICE
2274 University Avenue
St. Paul, MN 55114
(612) 645-9077

TOKI® is protected by federal copyright laws and is the property of Fabtek®. Any unauthorized versions of this game are illegal by federal law. AAMA protected stickers must be attached to the PCB. Please notify Fabtek® of any boards not having the AAMA seal.

IMPORTANT F.C.C. WARNING

THIS EQUIPMENT GENERATES AND CAN RADIATE RADIO FREQUENCY ENERGY; IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, IT MAY CAUSE INTERFERENCE WITH RADIO COMMUNICATIONS. AS TEMPORARILY PERMITTED BY REGULATION, IT HAS NOT BEEN TESTED FOR COMPLIANCE PURSUANT TO SUBPART J OF PART 15 OF FCC RULES, WHICH ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST SUCH INTERFERENCE. OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE INTERFERENCE IN WHICH CASE THE USER, AT HIS OWN EXPENSE, WILL BE REQUIRED TO TAKE WHATEVER MEASURES NECESSARY TO CORRECT THE INTERFERENCE.

DANGER

An isolation transformer must be used with the monitor and power supply.

This game must be equipped with a three wire 110 volt plug for safety. Under no circumstance remove the ground plug.

DANGER

This game is designed with a JAMMA 56 pin connector. This plug is one of the finest operator friendly features in our industry today. What this means to you is that:

1) 1, 2, A, B, 27, 28, e and f are grounded
2) 3. 4. C and D are +5 volts
3) 5 and E are -5 volts
4) 6 and F are +12 volts

Also, all video and joystick functions are always in the same place. Once a cabinet is wired for JAMMA, it is easily changed from game to game.

Many older games such as Pac Man®, etc., have the power supply on the board. This will not work!!! Only a JAMMA connector with proper voltage will work. Fabtek® recommends using an 11 or 15 amp switching power supply with **Toki®**.

INSTALLATION OF KIT
IN USED CABINET

To Disassemble:

1. Open back door and remove old board set and power supply, if you are using a new switching power supply.

2. Remove marquee glass and monitor glass.

3. Remove control panel and set aside.

4. Remove old wire harness, leaving 110 volt wiring intact. Also, leave the grounding straps to the monitor, coin door, control panel, and power supply intact.

Installation:

1. Mount the board set on the side panel of the cabinet as close to the middle of the game as possible (approximately 10-12" off bottom).

   NOTE: Do not mount board directly below control or any vents or cracks so that liquids may seep on to the board. Do not forget about coins that may drop on to the board. Also, mount the board with edge connector facing up.

2. Mount the power supply on the bottom of the cabinet with connectors facing the rear of the cabinet. An optional mounting might be on the side panel just below the board set, connector to rear.

3. If the game does not have an isolation transformer, you must protect your customers and your game. Install one between the 110 volt line and your monitor/power supply.

4. Place the provided JAMMA wiring harness on the board. Connect the +5, +12, -5, and ground wires to the corresponding lugs on the power supply, connecting all the wires. If you don't, you will probably burn the board connector.

5. Run a wire from -5 volts to the coin door lights. Run a wire from +12 volts to the coin counters. This completes the power requirements.

6. Connect the Audio (+) and Audio (-) to the speaker.

7. Connect the video red, green, blue, ground, and sync to the corresponding wires on the monitor. If the monitor is not a negative composite sync, see sync modifications chart.

8. Cut the marquee to size. Replace the marquee lamp, if needed. Install the marquee panel.

9. Connect the coin 1 and coin 2 wires to the coin switches. Connect the coin counter 1 and coin counter 2 wires to the coin counters.

   NOTE: If you only have one coin counter, see coin counter diagram. It will not matter if the coin counters are only rated at 6 volts, as the pulse is not long enough to burn out the counter.

10. Disassemble the control panel of all the hardware. Do not remove the old panel overlay. Determine where to place the new joystick and buttons if they must be repositioned. Then, cut new holes.

    NOTE: If you are going to use plexiglass over the control panel, we suggest that you use a good ⅛″ polycarbonate with a scratch resistant coating. We recommend GENERAL ELECTRIC LEXAN MR5 with margard or TUFFAK CM-2. These do not crack or break with abuse.

    Cut and drill plex as needed. Remove the old control panel overlay carefully and apply the new overlay on top of the old glue. Use an **Exacto** knife to cut out any button or bolt holes. Apply decals for "1 player," "2 player," "fire," and "grenades" over appropriate buttons. Now assemble the control panel.

11. Bolt the control panel to the cabinet. Now connect the 1P up/down, left/right, and weapons/grenade wires to the correct switches. Connect the 1 player and 2 player start wires.

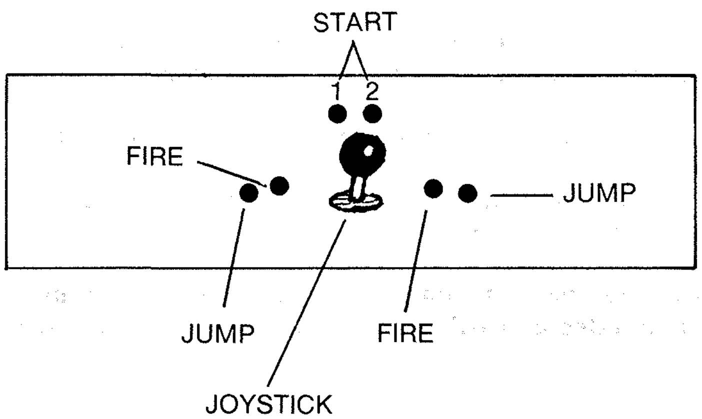
    NOTE: The 2P control wires need not be connected on upright cabinets, but only on the cocktail tables.

12. Power up the game. Look over your installation for errors, and then apply power, listening for unusual sounds. Check for smoke or sparks. If everything is okay, wire tie all wires to form a nice, neat wiring harness. Clean the cabinet inside and out. Measure the +5 volts on the furthest point from the edge connector and adjust 5 volts to 5.05 volts. Use a tinted plex over the monitor if there are burns in the screen. We suggest bronze or grey tinted plex. Touch up the cabinet with fresh paint, and then repair all cabinet dents or chips, using an auto body product called **Duraglass.** This is similar to bondo. You can consult your local auto body shop or auto parts supplier for this product, as well as advice on how to use it.

TOKI®

Fabtek® recommends installing your new Toki® kit in only a new or refurbished cabinet. Installing Toki® in an older cabinet will result in lower earnings. The cabinet should be as follows:

1. horizontal monitor
2. 11 amp or larger power supply
3. monitor not laying down flat.



TOKI® *by Fabtek®*

Fabtek ® is dedicated to being the most operator-oriented company in the game industry. In respect to you, the operator, this means several things, such as:

1) Having the clearest instructions possible so that you can minimize the time it takes to put the game together;

2) Providing useful information to help you produce the best-looking and highest earning game from your Fabtek® Kit;

3) Informing you of the proper setting for your game in both street and arcade locations. This is a first for the game industry; we realize that the differentiation between these two types of locations is important, and we want to help you prepare your game so that you can maximize your profits accordingly.

4) Continuing to keep the operator informed by publishing all service bulletins in the **Star Tech Journal** and in all other Trade Magazines.

To accomplish all of this, Fabtek® uses more operator input. Our games are made to be operated by operators such as yourself; you need all the information you can get today in order to make a maximum profit.

We would like to thank you for purchasing your new Fabtek® game. We are sure that the Fabtek® way will bring you back to us, game after game. Happy remunerations!

MONITORS

Toki® is designed to be operated with a horizontal raster scan monitor with negative sync (RGB). This means **Toki®** will not work with any X-Y (Tempest, Space Dual, Star Trec), etc. An isolation transformer must be used in conjunction with the monitor. This is for your safety. The monitor also utilizes extremely high voltages. The monitor may also retain a charge for an extended period of time. Safety goggles must be worn while removing or replacing the monitor.

It is highly recommended that the monitor is verified good before the new **Toki®** kit is installed in your new and or rebuilt cabinet.

Toki®

Fabtek® is concerned that your Fabtek® game will out earn the competition by 20 percent. The cabinet your kit is installed in will have a major effect on how much money it earns. Installing the game in a used cabinet that has already been kitted several times may not be the best way to maximize profits.

In arcade locations it is recommended installing Toki® in the Dynamo 25 inch or KD 27 inch cabinet. We feel the game will earn 20 percent more money because of the 25 or 27 inch monitor. With the JAMMA connector the game can be powered in about five minutes with only the control panel to be wired.

The 19 inch game cabinets may be better for smaller street locations.

Star Tech Tips

We are grateful to Star Tech Journal™ for allowing us to publish excerpts from their journal.

Monitor Sync

If your monitor does not have dual polarity positions for sync, you may use on of the following methods to get your game going.

CURE 1: Install a simple one I.C. Circuit on your logic board. This I.C. may be "piggy backed" on to another 7404 series chip for power by bending up all but the two power pins so that they are parallel to the top surface of the new I.C. and then connecting the power pins only to the existing chip. (See Fig. 1) Next connect the sync wires as shown in Fig. 2. (Note: Figure 2 shows a hookup for either ***composite*** *or* ***separate*** *syncs.)*

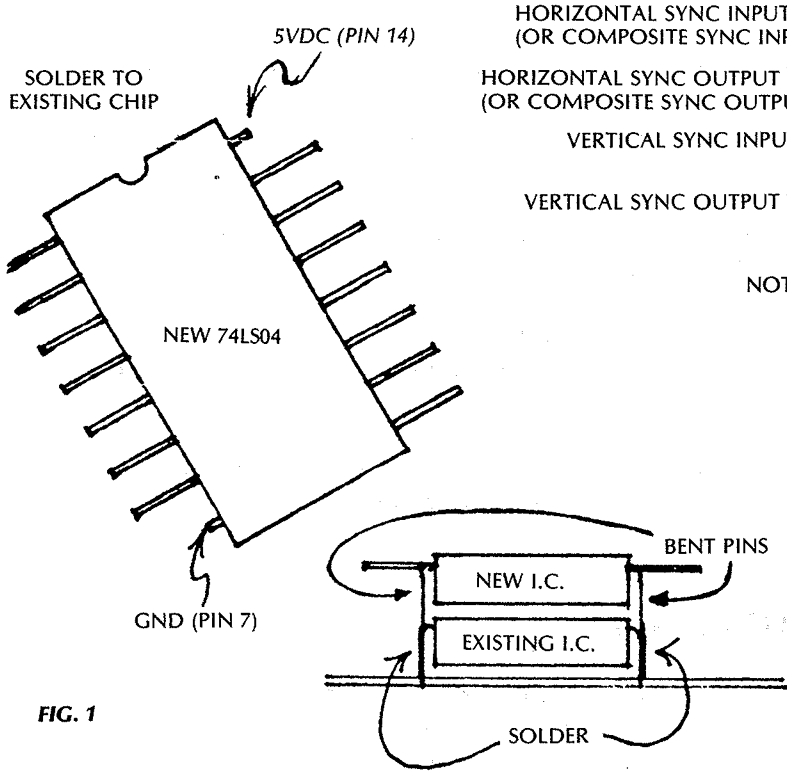


FIG. 1

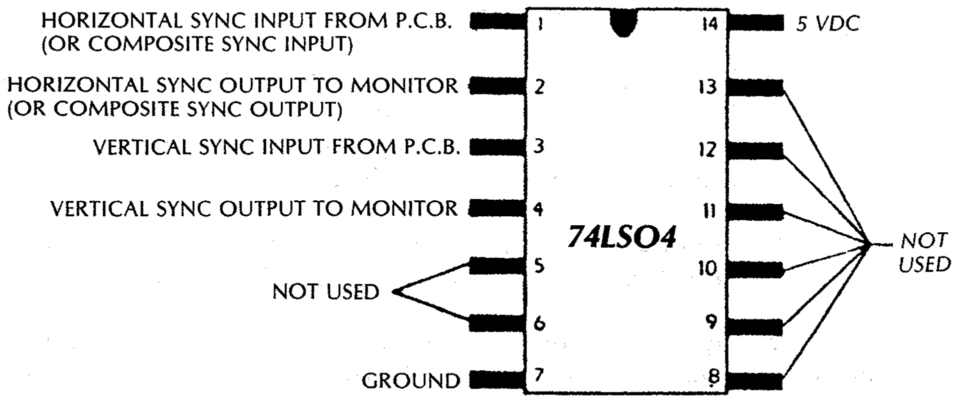


FIG. 2

CURE 2: Used for Wells-Gardner Video-Sync boards with positive sync connections only. (Vertical mount board 85x14 OB.

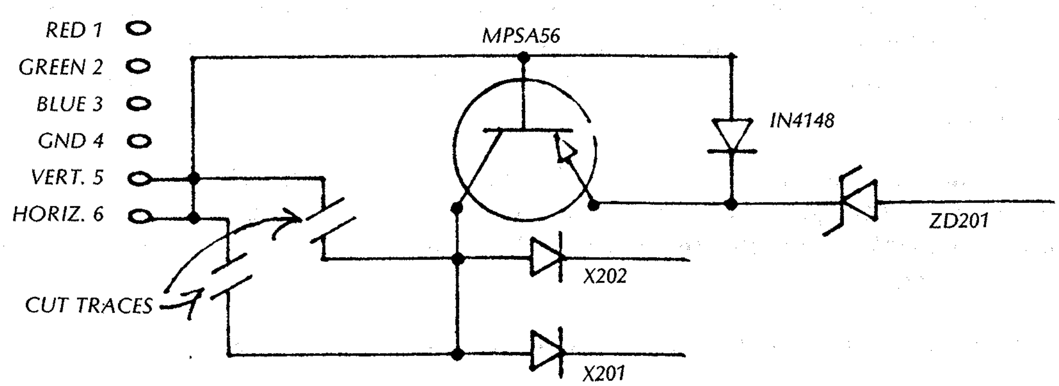
Cut the traces on the solder side of the board between input pins 5 & 6 to the unbanded (anode) ends of diodes X201 & X202.

Add MPSA 56 transistor as follows:

Collector to anode leads of diodes X201 & X202. Base pins 5 & 6 of the video input connector. Emitter to cathode (banded) lead of zener diode ZD201.

Insert a 1N4148 diode - cathode to the emitter of the MPSA56 and anode to the base. (See Fig. 3)

FIG. 3



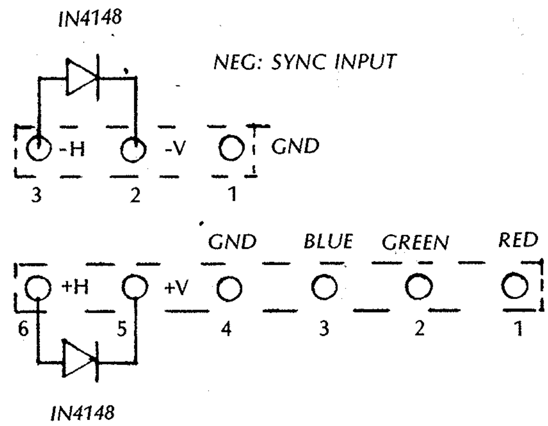
2. ***Horizontal Tearing***

CAUSE: The negative sync signal of most logic sets are slightly different than the GO7-CBO monitor negative sync inputs. The result of this mismatch is a horizontal "wave" or "curl".

CURE 1: On the monitor deflection board, replace C303 with a 10uf 25V radial lead capacitor with the positive lead towards the collector of X305. (CAUTION: be sure to check this step as the original cap is not polarized.) Then replace C501 with the cap removed from the C303 location.

CURE 2: Connect 1N4148 fast-switching diodes across both the positive and negative sync inputs to the monitor. (See Fig. 4) NOTE: Both diodes must be installed or you will not have vertical stability.

FIG. 4



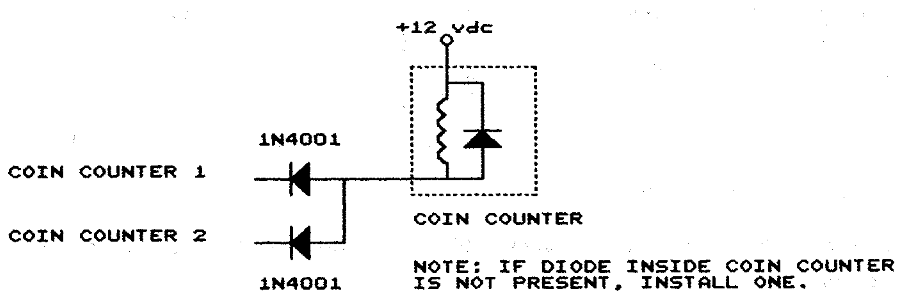
CURE 3: Join negative sync inputs J2 and J3 together with a jumper. Locate W102 and install a jumper from W102 to either J2 or J3.

CURE 3: For Wells-Gardner K4600 series monitors.
Replace C356 (4 7uf 25V) on the Horizontal/vertical board (vertically mounted board nearest the flyback transformer) and center the horizontal hold pot. Turn L351 for the best horizontal stability and fine-tune with the horizontal width pot.

STAR TECH JOURNAL
P.O. Box 1065
18 N. Centre Street
Merchantville, J.J. 08109
609-662-1080

COIN COUNTER DIAGRAM

If only one coin counter is to be used install two diodes in the following manner:



TOKI®
JAMMA EDGE CONNECTOR/CABLE

COMPONENT SIDE			SOLDER SIDE		
FUNCTION	**COLOR**	**POS**	**POS**	**COLOR**	**FUNCTION**
GROUND	BLK	1	A	BLK	GROUND
GROUND	BLK	2	B	BLK	GROUND
+5 VOLTS	RED	3	C	RED	+5 VOLTS
+5 VOLTS	RED	4	D	RED	+5 VOLTS
-5 VOLTS	BRN	5	E	BRN	-5 VOLTS
+12 VOLTS	BLU	6	F	BLU	+12 VOLTS
		7	H		
COIN COUNTER #1	BLU/BRN	8	J	WHT/PUR	COIN COUNTER #2
		9	K		
AUDIO NEG -	WHT/BLK	10	L	BLK	AUDIO POS +
		11	M		
VIDEO RED	RED	12	N	GRN	VIDEO GRN
VIDEO BLU	BLU	13	P	WHT	VIDEO SYNC*
VIDEO GND	BLK	14	R	BRN/WHT	
	YEL	15	S	WHT/BRN	
COIN INPUT 1	WHT/YEL	16	T	GRN/YEL	COIN INPUT 2
START 1	PNK/BLK	17	U	RED/BLK	START 2
1 P UP	ORG/BLU	18	V	BRN/BLU	2 P UP
1 P DOWN	GRN/ORG	19	W	ORG/WHT	2 P DOWN
1 P LEFT	GRN/BLU	20	X	ORG/GRN	1 P LEFT
1 P RIGHT	RED/YEL	21	Y	WHT/ORG	2 P RIGHT
1 P FIRE	RED/WHT	22	Z	BRN/BLK	2 P FIRE
1 P JUMP	WHT/RED	23	a	YEL/WHT	2 P JUMP
	YEL/BLK	24	b	BRN/GRN	
		25	c		
		26	d		
GROUND	BLK	27	e	BLK	GROUND
GROUND	BLK	28	f	BLK	GROUND

* Video sync composite negative

NOTE: 2 Player controls are used on cocktail tables and upright with player control option. 1 and 2 player games are not interactive.

KD/DYNAMO — UNIVERSAL VIDEO WIRING

56 PIN EDGE CONN. PIN-OUT CHART (JAMMA COMPATIBLE)

COMPONENT SIDE			SOLDER SIDE		
FUNCTION	COLOR	POS	POS	COLOR	FUNCTION
GROUND	BLK	1	A	BLK	GROUND
GROUND	BLK	2	B	BLK	GROUND
+5 VOLTS	RED	3	C	RED	+5 VOLTS
+5 VOLTS	RED	4	D	RED	+5 VOLTS
-5 VOLTS	WHITE	5	E	WHITE	-5 VOLTS
+12 VOLTS	YELLOW	6	F	YELLOW	+12 VOLTS
KEY		7	H		KEY
COIN COUNTER #1	BRN	8	J		COIN COUNTER #2
COIN LOCK OUT 1	RED	9	K		COIN LOCK OUT 2
SP (+)	WHT	10	L	WHT/BLK	SP (-)
N.C.	BLUE-OPTION	11	M	OP.-BLU/BLACK	N.C.
VIDEO RED	RED	12	N	GRN	VIDEO GRN
VIDEO BLU	BLU	13	P	GRAY	VIDEO SYNC*
VIDEO GND	BLK	14	R	RED/BLACK	SERVICE SWITCH
TEST SW.	BROWN	15	S	OP.-BRN/BLACK	TILT SW.
COIN SW. 1	WHITE	16	T		COIN SW. 2
START 1	GRAY	17	U	WHITE/GRAY	START 2
1 P UP	VIOLET	18	V	WHITE/VIOLET	2 P UP
1 P DOWN	BLUE	19	W	WHITE/BLUE	2 P DOWN
1 P LEFT	GREEN	20	X	WHITE/GREEN	2 P LEFT
1 P RIGHT	YELLOW	21	Y	WHT/YELLOW	2 P RIGHT
1 P PUSH 1	ORANGE	22	Z	WHT/ORANGE	2 P PUSH 1
1 P PUSH 2	RED	23	a	WHT/RED	2 P PUSH 2
1 P PUSH 3	BROWN	24	b	WHT/BROWN	2 P PUSH 3
N.C.	BLUE/WHT	25	c	GREEN/WHT	N.C.
N.C.	RED/WHT	26	d	YELLOW/WHT	N.C.
GROUND	BLK	27	e	BLK	GROUND
GROUND	BLK-OPTION	28	f	BLK-OPTION	GROUND

* Video sync composite negative

NOTE: 2 Player controls are used on cocktail tables and upright with player control option. 1 and 2 player games are not interactive.

TOKI® JAMMA PIN OUTS — HORIZONTAL SCREEN — 1 x 8 WAY JOYSTICK 2 BUTTONS

DIP-1

FUNCTION	SWITCH	1	2	3	4	5	6	7	8
COIN MODE SELECT	COIN MODE 1	OFF							
	COIN MODE 2	ON							
MODE 1	1 COIN 1 PLAY	(OFF)	OFF	OFF	OFF	OFF			
	2 COINS 1 PLAY	↑	ON	OFF	OFF	OFF			
	3 COINS 1 PLAY		OFF	ON	OFF	OFF			
	4 COINS 1 PLAY		ON	ON	OFF	OFF			
	5 COINS 1 PLAY		OFF	OFF	ON	OFF			
	6 COINS 1 PLAY		ON	OFF	ON	OFF			
	1 COIN 2 PLAY		OFF	ON	ON	OFF			
	1 COIN 3 PLAY		ON	ON	ON	OFF			
	1 COIN 4 PLAY		OFF	OFF	OFF	ON			
	1 COIN 5 PLAY		ON	OFF	OFF	ON			
	1 COIN 6 PLAY		OFF	ON	OFF	ON			
	2 COINS 3 PLAY		ON	ON	OFF	ON			
	3 COINS 2 PLAY		OFF	OFF	ON	ON			
	5 COINS 3 PLAY		ON	OFF	ON	ON			
	8 COINS 3 PLAY	↓	OFF	ON	ON	ON			
	FREE PLAY	(OFF)	ON	ON	ON	ON			
MODE 2 — COIN MECH. (A)	1 COIN 1 PLAY	(ON)	OFF	OFF					
	2 COINS 1 PLAY	↑	ON	OFF					
	3 COINS 1 PLAY		OFF	ON					
	5 COINS 1 PLAY		ON	ON					
MODE 2 — COIN MECH. (B)	1 COIN 2 PLAY				OFF	OFF			
	1 COIN 3 PLAY				ON	OFF			
	1 COIN 5 PLAY	↓			OFF	ON			
	1 COIN 6 PLAY	(ON)			ON	ON			
$$$=CONTROL PANEL	1P-1 JOYSTICK/2 BUTTON						OFF		
	2P-2 JOYSTICK/4 BUTTON						ON		
GAME STYLE	UPRIGHT							OFF	
	TABLE							ON	
SCREEN REVERSE	NORMAL								OFF
	INVERT								ON
DEFAULT SETTING		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

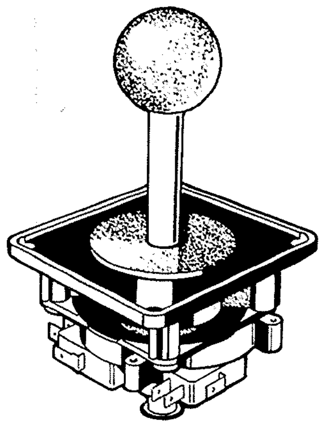
$$$=ATTENTION!!! DIP SW#6 ALTERNATIVE TWO PLAYER GAME. THE GAME WORKS WITH BOTH 1P OR 2P CONTROL PANEL, UPRIGHT OR COCKTAIL.

DIP-2

FUNCTION	SWITCH	1	2	3	4	5	6	7	8
NO. OF LIVES	70000 Only			OFF	OFF				
	5K - 15K			ON	OFF				
	10K - 20K			OFF	ON				
	Every 70K			ON	ON				
DIFFICULTY	NORMAL					OFF	OFF		
	EASY					ON	OFF		
	HARD					OFF	ON		
	VERY HARD					ON	ON		
CONTINUE PLAY	YES							OFF	
	NO							ON	
DEMO SOUND	YES								OFF
	NO								ON
DEFAULT SETTING		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

RECOMMENDED SETTING ARE IN THE OFF POSITION
HORIZONTAL SCREEN, ALTERNATIVE TWO PLAYER GAME, 1 x 8 WAY JOYSTICK 2 BUTTONS

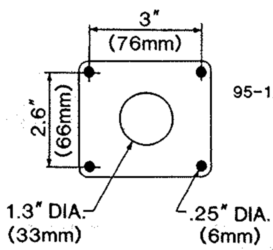
SPRING ACTION JOYSTICK

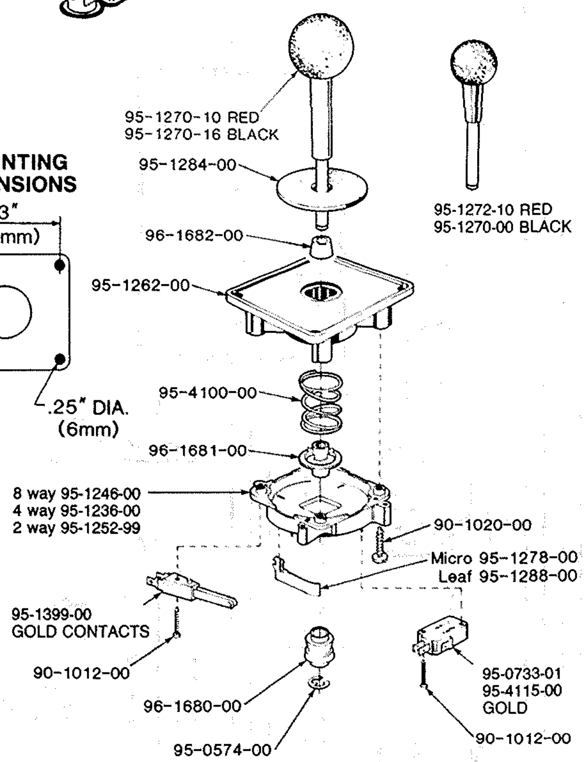


Featuring:

- Nylon and solid steel construction
- Spring return to center
- Micro or leaf switches individually replaceable
- Long shaft, 1.5 inch diameter red knob fitted as standard

MOUNTING DIMENSIONS



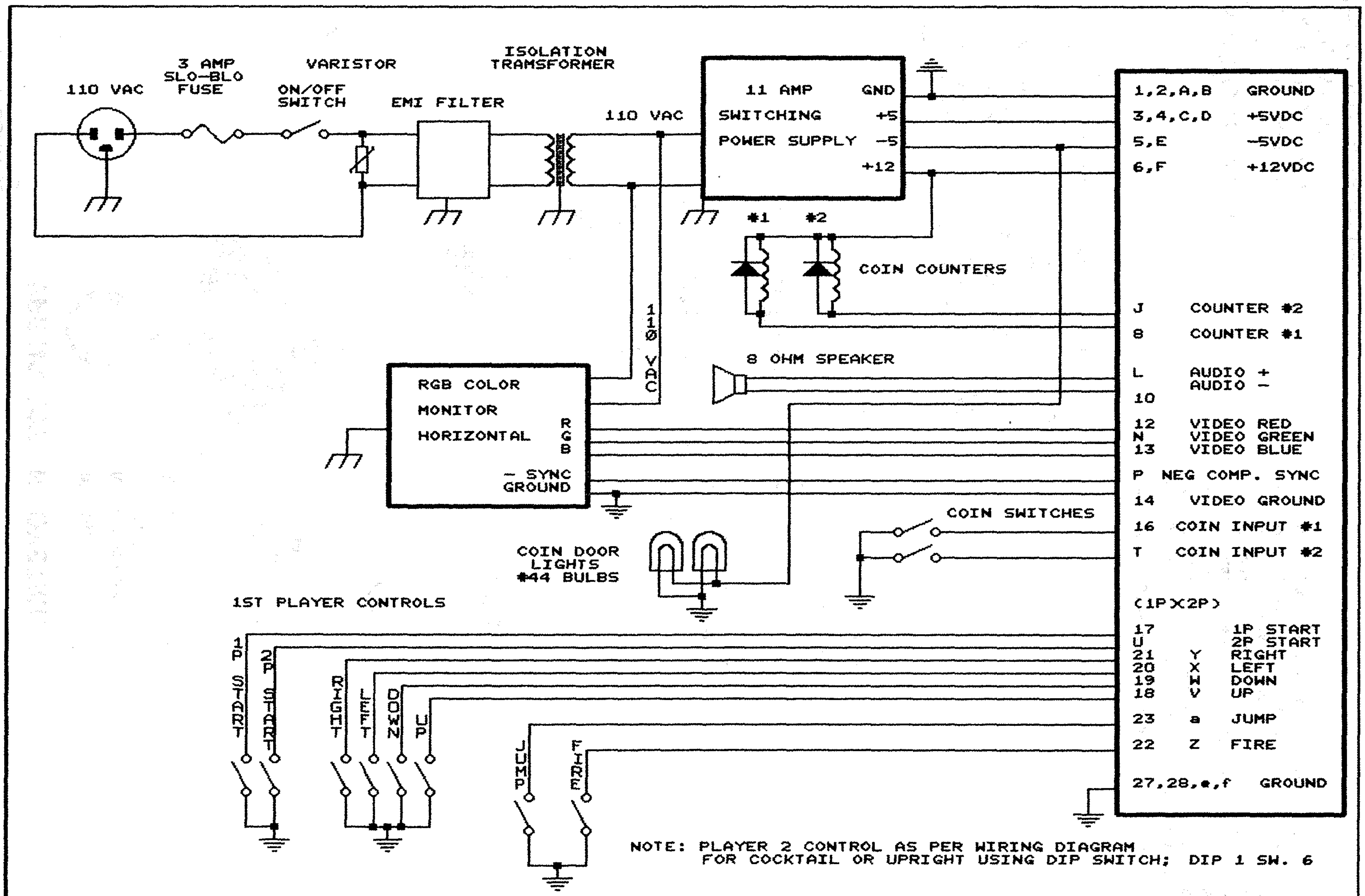


PARTS LIST:

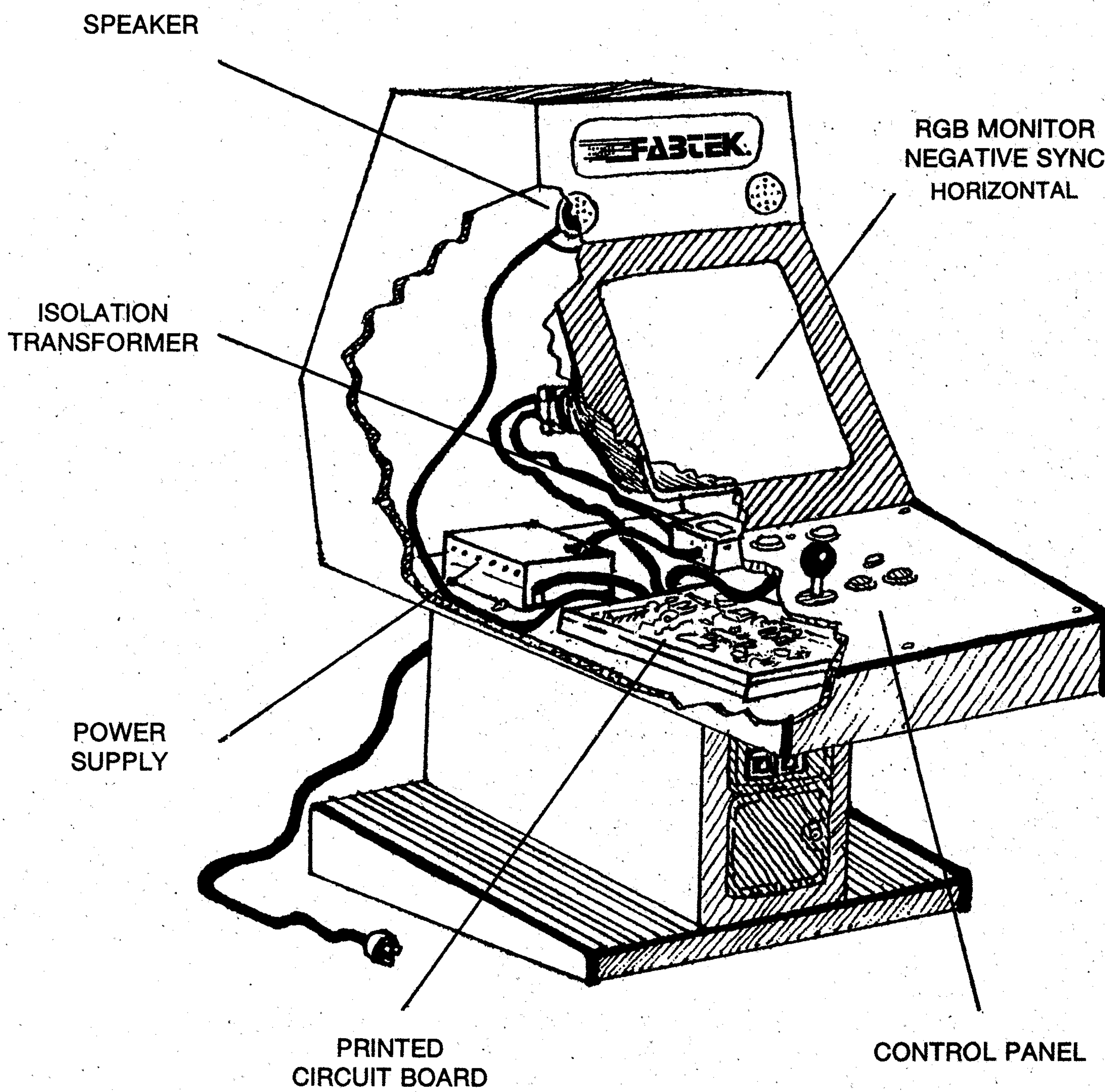
90-1020-00	Switch Bracket Screw
90-1012-00	M/S screw
95-0574-00	E-Ring
95-0733-01	Microswitch
95-1246-00	8-way bracket
95-1236-00	4-way bracket
95-1252-99	2-way bracket
95-1262-00	Hub
95-1270-00	Black 1.25″ knob & shaft
95-1272-10	Red 1.25″ knob & shaft
95-1270-10	Red 1.5″ knob & shaft
95-1270-16	Black 1.5″ knob & shaft
95-1278-00	Microswitch protector
95-1288-00	Leaf switch protector
95-1284-00	2″ Dia. washer
95-1399-00	Leaf switch, side mount GOLD contacts
95-4100-00	.850 dia. spring
96-1680-00	Actuator micro/switch
96-1681-00	Z-Stop
96-1682-00	Pivot cone

SPRING ACTION JOYSTICK Price per ea.	1-24	25+
50-5308-02 8-way microswitch joystick 1.25″ knob	12.95	9.95
50-5304-02 4-way microswitch joystick 1.25″ knob	12.95	9.95
50-4308-02 8-way leaf switch joystick 1.25″ knob	12.95	9.95
50-4304-02 4-way leaf switch joystick 1.25″ knob	12.95	9.95
50-5508-02 8-way microswitch joystick 1.5″ knob	12.95	9.95
50-5504-02 4-way microswitch joystick 1.5″ knob	12.95	9.95
50-4508-02 8-way leaf switch joystick 1.5″ knob	12.95	9.95
50-4504-02 4-way leaf switch joystick 1.5″ knob	12.95	9.95

HAPP CONTROLS, inc.
106 Garlisch
Elk Grove, Illinois 60007
Phone: (312) 593-6130
Fax: (312) 593-6137
Telex: 297249 CONTROLS UR



NOTE: PLAYER 2 CONTROL AS PER WIRING DIAGRAM FOR COCKTAIL OR UPRIGHT USING DIP SWITCH; DIP 1 SW. 6


SPEAKER
FABTEK
RGB MONITOR
NEGATIVE SYNC
HORIZONTAL
ISOLATION
TRANSFORMER
POWER
SUPPLY
PRINTED
CIRCUIT BOARD
CONTROL PANEL